

REMARKS

Claims 15 and 23 have been amended to recite the computer implemented methods applied to the previously claimed "method of generating a hybrid grid applicable to a heterogeneous reservoir crossed by at least one geometric discontinuity of known geometry in order to form a model representative of fluid flows in the reservoir in accordance with a defined numerical pattern, a structure of the reservoir being known *a priori* from available data acquired through *in-situ* measurements, analysis and/or interpretations of seismic images of the reservoir" and "method of simulating, in accordance with the defined numerical pattern, evolution of a process in a heterogeneous reservoir crossed by at least one geometric discontinuity of a known geometry, a structure of the reservoir being known *a priori* from available data acquired through *in-situ* measurements, analysis, and/or interpretations of seismic images of the reservoir." The amendment of the independent claims to recite a computer implemented method involving a heterogeneous reservoir in combination with data acquired through *in-situ* measurements, analysis and/or interpretations of seismic images of the reservoir overcomes the Examiner's interpretation of the claims as being an abstract idea which is not limited to practical application in the technological arts. Heterogeneous reservoirs are understood by persons of ordinary skill in the art to be underground formations in which the claimed fluid flows occur and furthermore, seismic images of the reservoir are also understood by persons of ordinary skill in the art to be acquired data from the heterogeneous reservoirs. Therefore, the claims pertain to statutory subject matter.

Claims 15-34 stand rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. The Examiner considers claims 15-34 to be an abstract idea and that further, the invention is not limited to a practical application of the technological arts. These grounds of rejection are traversed for the following reasons.

The claims have been amended to recite a computer implemented method which the Examiner indicated in Section 8 of the Office Action would place the application in condition for allowance. It should be noted that the Examiner's conclusions in Sections 4-6 of the Office Action are traversed. In the first place, a person of ordinary skill in the art understands the previously claimed method of generating a hybrid grid applicable to a heterogeneous reservoir involves a computer implemented method applied to the technological arts. The generated hybrid grid is a simulation of a heterogeneous reservoir based upon the claimed measurement, analysis or interpretation of seismic images of the reservoir all of which are real world acquired data. Accordingly, the Examiner's conclusion that the claimed invention does not have practical application is contradicted by the terms of the independent claims prior to amendment which recite the practical application.

Moreover, a person of ordinary skill in the art understands from numerous places in the Substitute Specification which refer to grid generation beginning on page 1, line 11, and additional references in the specification, such as a suitable numerical pattern on page 1, lines 13 and 14, the description of prior art references, such as the Bennis et al publication which has a title of "One More Step in Gocad Stratigraphic Grid Generation: Taking Into Account Faults and Pinchouts" (emphasis added) which is understood to be a reference to computer implemented technology

used in the context of gridding. Additionally, the reference to several objects in the same GPG type reservoir grid at the bottom of page 2 of the Substitute Specification again is understood by a person of ordinary skill in the art to represent the use of a screen which is driven by a computer implemented method. Additionally, on page 3, line 4, of the Substitute Specification, the reference to the advantage of such an approach is that it is entirely automatic again makes reference to what a person of ordinary skill in the art understands to be a computer generated method.

Additionally, the description of French Patent Application 99/15,120 at the bottom of page 3 of the Substitute Specification and the top of page 4 of the Substitute Specification, refers by its reference to importing into the model in order to better take into account the particular constraints linked with the flows in the vicinities of these wells to be a reference to a computer implemented process. Again, the terminology "imported" used in the Detailed Description of the Invention in the description on page 10, lines 13, of the Substitute Specification, where reference is made to trajectories are drawn synthetically or imported, is understood to be a computer implemented process. Furthermore, on page 11, line 8, of the Substitute Specification, the reference that the user can deactivate the grid of the well at any time by reactivating the grid cells of the corresponding cavity in the reservoir is another reference to a computer implemented process.

Accordingly, it is submitted that the Examiner's conclusion at the end of section 4 of the Office Action, that "examination has revealed no computer or computer-readable medium has been disclosed by the Applicant" is incorrect in that a person of ordinary skill in the pertinent art understands that the numerous

references in the specification to gridding and other terminology are understood unequivocally to be references to computer implemented processes and methods.

Accordingly, the amendment of the claims as suggested by the Examiner to recite a computer implemented process is fully supported by the specification as filed. Early allowance of the application in view of the foregoing amendments and remarks is respectfully requested.

To the extent necessary, Applicants petition for an extension of time under 37 CFR §1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 01-2135 (Case No. 612.39353X00) and please credit any excess fees to such deposit account.

Respectfully submitted,

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